

Mock, Cary, University of South Carolina

## Long Daily Historical Climate Reconstructions for Southern Alaska

2009

**Abstract:** Daily and sub-daily historical weather observations are available for southern Alaska, providing a valuable extension of the modern instrumental record back to around 1830. Much of these data have never been extracted from the archives, digitized, or have been systematically analyzed. The proposed research will extract all known meteorological data from land-based stations and ship logbooks housed at various archives. The proposed research will improve our understanding of Northeast Pacific and southern Alaska climatic variability by: 1) reconstructing interannual and decadal temperature and precipitation variability; 2) examining temporal changes in the relationships between major modes of atmospheric circulation (e.g., ENSO) with the Alaska temperature and precipitation reconstructions; 3) reconstructing monthly PDO, PNA, and CNP (Central North Pacific Pressure) indices using Alaskan data along with other high quality daily nineteenth century data from the West Coast and Southeast U.S.; and 4) reconstructing major extratropical storms and relating the temporal variations with forcing mechanisms of climatic change. The historical data, much of it sub-daily in temporal resolution with as many as 18 instrumental observations per day such as recorded by Russian observers at Sitka Alaska, will enable the Northeast Pacific Ocean and southern Alaska to have the most detailed and longest homogeneous high resolution nineteenth century climatic records for North America.